UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Dr. Haldane, Fellow of New College, has been re-appointed lecturer in physiology on the nomination of the Waynflete professor. The appointment is for three years from January 1, 1906. Chemical physiology is the particular subject assigned to the lecturer.

The degree of M.A. has been conferred, by a decree of Convocation, on Dr. Schlich, secretary to the delegacy for superintending the instruction of Indian forestry students.

CAMBRIDGE.—An election to an Isaac Newton studentship will be held in the Lent term, 1906. These studentships are for the encouragement of study and research in astronomy (especially gravitational astronomy, but including other branches of astronomy and astronomical physics) and physical optics. The studentship will be tenable for the term of three years from April 15, 1906. The emolument of the student will be 200*l.* per annum. Candidates for the studentship are invited to send in their applications to the Vice-Chancellor between January 16 and 26, 1906, together with testimonials and such other evidence as to their qualifications and their proposed course of study or research as they may think fit.

An appointment to the Anthony Wilkin studentship in ethnology and archæology (*Reporter*, May 23, pp. 920–1) will be made in January, 1906. Applicants should send in their names, qualifications, and a statement of the research which they wish to undertake, to the Vice-Chancellor before January 1, 1906.

Mr. T. S. P. Strangeways, of St. John's College, has been re-appointed demonstrator of pathology for a period of five years from Michaelmas, 1905.

Prof. C. S. Sherrington, F.R.S., and Prof. R. Threlfall, F.R.S., have been elected honorary fellows at Gonville and Caius College.

The State Medicine Syndicate has nominated Mr. J. E. Purvis, Mr. G. H. F. Nuttall, Dr. J. Lane Notter, Dr. R. D. Sweeting, and Dr. A. Newsholme to be examiners in State medicine in the year 1906; and Mr. G. H. F. Nuttall, Mr. C. W. Daniels, and Prof. Ronald Ross, C.B., F.R.S., to be examiners for the diploma in tropical medicine and hygiene in the year 1906.

DR. W. A. BONE, F.R.S., has been appointed professor of applied chemistry (fuel and metallurgy) in the University of Leeds.

MR. CHARLES W. E. LEIGH, formerly of the Natural History Museum, South Kensington, and late assistant secretary and librarian to the Manchester Literary and Philosophical Society, has been appointed librarian of the University of Manchester.

THE following appointments, *Science* states, have been made in the faculties of the George Washington University:—General Henry L. Abbott, U.S.A., to be professor of hydraulic engineering; Dr. Edward B. Rosa to be professor of physics; and Brigadier-General George M. Sternberg, U.S.A., to be professor of preventive medicine.

WE learn from *Science* that President Eliot, of Harvard University, has received a letter from President Pritchett, of the Massachusetts Institute of Technology, communicating the fact that, in view of the recent decision of the Supreme Court of the State in the case of John Wilson and others *v.* the Massachusetts Institute of Technology, the corporation of the institute find it impossible to proceed with the plan of cooperation between the university and the institute which has been under consideration for the past six months. The committee appointed by the Harvard board at the request of the institute has consequently been discharged.

AT the annual general meeting of members of the Bedford College for Women, held on November 17, the chairman, the Right Hon. A. H. Dyke Acland, announced that the Parliamentary grant to Bedford College had for the current session been increased from 2000*l.* to 4000*l.* It was also reported that past students had already contributed 3500*l.* to the building fund. Principal T. G. Foster, of University College, and Lady Lockyer have been elected members of the council, as representatives of the senate of the University of London. The council offers two open scholarships of the value of 20*l.* each for one year for the course of secondary training beginning in January, 1906. The scholarships will be awarded to the best candidates holding a degree or equivalent in arts or science. Applications should reach the head of the training department not later than Monday, December 18.

SIR W. H. PREECE distributed the prizes and certificates to the students of Birkbeck College on November 14, and afterwards delivered an address on the simplicity of science. Sir William Preece said he has never believed that in scientific and technical training Englishmen are far behind the rest of the world. However lacking we may have been in the upper regions of higher education, we have never failed to encourage education in other ranges, and Birkbeck College was one of the first in this country to spread the love of science and to offer educational facilities to those willing to use them in their leisure hours. What is wanted now, he continued, is that men who make fortunes in the metropolis shall become patriotic founders of endowments for enabling us to distribute the teaching advantages already existing to all classes of society. Sir W. Preece incidentally remarked on the absence of memorials to pioneers of science, mentioning especially Sir Henry Bessemer—an old student of Birkbeck College. Towards the conclusion of his address he suggested that Members of Parliament, before being permitted to legislate, should have to go through a course of instruction in scientific modes of thought.

AT a dinner given by the Society of Apothecaries on November 14, Mr. John Tweedy, president of the Royal College of Surgeons, responding to the toast "The Royal Colleges of Physicians and Surgeons," dealt with the subject of medical education. He said that, in accordance with the promptings of the General Medical Council, the Royal College of Surgeons has raised the standard of general education of medical students, and has increased the multiplicity and severity of the examinations. But Mr. Tweedy would like to see the wheel turned back a little. He thinks that too much is being attempted in the way of examinations, and desires to see steps taken in the direction of simplification, without any sacrifice of efficiency. If some of the restrictions and regulations were relaxed, he believes a better class of practitioner than is possible under the present *régime* could be produced. The student is over-taught, over-examined, so that he has no time to reflect, to exercise his reason or his intellect. Mr. Tweedy believes that the medical examinations are best entrusted to professional corporations. Although he does not go so far as to advocate deprivation of the universities' power of granting qualifying degrees, he pointed out that the universities do not possess a qualifying degree in law.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, July 29.—"Studies on Enzyme Action. VII.—The Synthetic Action of Acids contrasted with that of Enzymes. Synthesis of Maltose and Isomaltose." By E. Frankland **Armstrong.** Communicated by Prof. H. E. Armstrong.

The belief has grown up of late years that the enzymes which are capable of inducing the hydrolysis of disaccharides or bioses act reversibly; as yet, however, but little has been done to define the theory of the process, and no understanding has been arrived at as to the limitations to which such changes are subject. The same is true of the action of acids, which also act reversibly under certain conditions.

The key to the interpretation of the changes which attend condensation must be looked for in the behaviour of glucose itself in solution.

The term glucose, in fact, has a double connotation, and these two substances must usually be thought of under the single name. As crystallised from alcohol, it consists almost entirely of the α-form; but this changes over into the β-form if maintained during several days at about 105°. If either form be dissolved in water, change takes place of the one into the other: ultimately, the two forms exist in solution in equilibrium, in proportions which depend on the conditions, the β-compound predominating. Change takes place in a similar manner in other media.

The process by which a monose is converted into a biose must be regarded as precisely similar to that by which α-glucose and β-glucose are converted into the two methylglucosides: the behaviour of maltose, in fact, is such as to characterise it unquestionably as glucose-α-glucoside; isomaltose is presumably the stereoisomeric glucose-β-glucoside.

When glucose undergoes condensation "uncontrolled," it should give rise to both maltose and isomaltose, the proportions of which ultimately present in equilibrium would depend on their relative stability under the conditions operative at the time. But, inasmuch as hydrolysis under the influence of enzymes is an absolutely selective process, being so controlled that it takes place in one direction only, it might be supposed that synthesis under their influence would also be a controlled operation, and that the tendency of the enzyme would be to reproduce the biose which it hydrolyses: apparently this point of view was present in Croft Hill's mind and led him to suppose, at first, that maltose was the actual product; as a matter of fact, it is uncertain at present whether maltose is produced at all: it is certainly not the sole or even the predominant product.

The formation under the influence of the enzyme of a single biose, *isomeric with that which it hydrolyses,* could be accounted for on the assumption that both are produced initially, but that the one again undergoes hydrolysis as soon as it is formed, so that it all but disappears.

Proof is given in the present communication that when the condensation is effected under laboratory conditions the action takes place in the manner indicated above; in other words, the two products required by theory are both formed. Evidence is adduced to show that isomaltose is the β-glucoside correlative with the α-glucoside maltose. Experiments are described bearing on the formation of isomaltose by the agency of the α-enzyme maltase and of its correlative maltose by the agency of the β-enzyme emulsin which leave little doubt that the two bioses are producible from glucose. Whilst it is left undecided whether maltase can give rise to maltose, evidence is cited which at least renders it probable that emulsin does not give rise to isomaltose.

"Studies on Enzyme Action.—Lipase." By Henry E. **Armstrong,** F.R.S.

The study of vegetable lipase is of special importance, as the ordinary fats—which are hydrolysed under its influence with peculiar readiness—are not asymmetric material but simply glycerides of acids of the acetic or oleic series. The interest of the inquiry is enhanced by the fact that animal lipase, according to Dakin, acts selectively but the selective effect of lipase is of a different order from that displayed, for example, by an enzyme of the sucroclastic class, which can only attack one member of a pair of enantiomorphous isomerides.

In the course of the experiments, Connstein's contention has been confirmed that the presence of acid is necessary to condition the hydrolysis and that practically any acid is effective provided a sufficient amount be used. Aspartic and glutamic acids—which are formed at an early stage of the germination of seeds—were found to be highly active; glycin and asparagin, however, were practically without effect.

All attempts resulted in failure which were made to obtain an extract containing an enzyme, whether from the freshly-ground material directly or after this had been deprived of the fatty matter and whether or no acid were present. Apparently, acids do not act merely by liberating the enzyme.

The Ricinus enzyme has been found to have but little action, not only on ethylic butyrate, on acetin and on dimethylic tartrate and racemate but also on ethylic mandelate, which, according to Dakin, is readily attacked by animal lipase.

It is difficult to resist the impression that the differences observed are not merely consequences of differences in stability of the various ethereal salts but that the Ricinus enzyme is possessed of properties which make it specifically capable of promoting the hydrolysis of glycerides of the higher fatty acids.

Received August 10.—"Fertility in Scottish Sheep." By Dr. F. H. A. **Marshall.** Communicated by Prof. E. A. Schäfer, F.R.S.

Received August 18.—"The Pressure of Explosions. Experiments on Solid and Gaseous Explosives." Parts i. and ii. By J. E. **Petavel.**

Part i. deals with the methods and apparatus used in the research. Part ii. is devoted to a study of the properties of cordite.

Received September 7.—"On the Nature of the Galvanotropic Irritability of Roots." By Dr. Alfred J. **Ewart** and Jessie S. **Bayliss.** Communicated by Francis Darwin, For.Sec.R.S.

After the contradictory experiments of Müller-Hettlingen, and Elfving, Brünchorst found that strong currents produced a positive, and weak currents a negative, curvature. Roots hence appeared to possess a parallelotropic irritability to electrical currents, reversible according to the intensity, as in the case of heliotactic and heliotropic irritability. The experiments were not altogether satisfactory, nor did they reveal the mode of stimulation, so further investigations seemed desirable.

These have shown that the curvatures are produced by the acid and alkaline products of electrolysis liberated on opposite sides of the root. The acid products are more effective than the alkaline, so that when the current is led transversely through the subapical sensitive region the curvature always takes place towards the positive electrode; but if one electrode is placed upon the hypocotyl and the other on the irritable zone, the curvature is always towards the latter electrode, whether it be positive or negative. These *galvanogenic* curvatures are hence chemotropic in origin, as has been shown by direct experiments with acids and alkalis. Thus, if the roots are imbedded at varying distances in gelatin through which a current is passed, the roots curve in regular order towards the electrodes shortly after the acid or alkali, as evidenced by phenolphthalein, has diffused near to them.

In addition, the application of the electrolysed region of a root or of filter paper moistened with decinormal acid or alkali produces similar curvatures.

All these curvatures have been produced on a klinostat and without any injury to the root. Indeed, in many cases a constant current of 0·000009 of an ampere is sufficient to cause a curvature. Using non-polarisable electrodes, no response is given unless very strong currents are used, since the stimulation is now dependent upon the restricted internal polarisation in the root.

It is doubtful whether the electrical currents in the soil call this special irritability regularly into play. The power of curving towards faintly acid or alkaline regions must aid the root greatly in reaching soil where soluble constituents are most likely to be abundant, or where anaërobic nitrogenous decomposition (with a production of ammonia) or the subsequent aërobic nitrification (with a production of traces of nitrous and nitric acids) are in progress.

The non-development of any power of curving away from strong acid or alkali is to be explained by the non-occurrence of high local concentrations in normal soil. Even when a strong local acidity or alkalinity is artificially produced in the soil, the roots are killed before they can curve away from it, and even if the apical zone did curve away, the non-curving zone behind would be rapidly killed.

Sociological Society, October 24.—Sir John Cockburn in the chair.—Biological foundations of sociology: Dr. G. Archdall **Reid.** The author outlined modern teaching on the subject of heredity, accepting the Weissmannian conclusion regarding the non-inheritance of acquired characters. These principles he applied to human qualities with especial reference to the possibilities of selective breeding. Four main conclusions were reached:—(*a*) That there is a confusion, in popular and in uncritical medical opinion, of variation with acquirement. Many individual acquirements are considered innate. (*b*) That racial change through heredity is a process requiring very long periods of time, so increase of natural ability by selection of variations must remain, on the whole, inconsiderable. (*c*) That the more important factor is individual acquirement or education. The great output of genius during the Athenian and Renaissance periods is to be explained, not in terms of natural ability, but as arising from exceptional opportunity. (*d*) That the one practicable method of improving the racial average of natural ability is by the elimination of clearly degenerate types.

Challenger Society, October 25.—Mr. E. W. L. Holt in the chair.—Charts illustrating the physical conditions in the English Channel during 1903 and 1904: Dr. E. J. **Allen** and D. J. **Matthews.** The observations, which were conducted from the Plymouth laboratory of the Marine Biological Association as a centre, had been made by the association's steamers *Huxley* and *Oithona*, by ocean-going liners and cross-Channel steamers, and at lightships and lighthouses. They extended from about Dungeness to Cape Finisterre, and showed the north-easterly movement of oceanic water of high salinity and temperature, the southerly movement of water of low salinity from the Irish Sea, and the varying effects of these movements on the waters of the English Channel in different months.

Royal Astronomical Society, November 10.—Mr. W. H. Maw, president, in the chair.—Observations of the sixth and seventh satellites of Jupiter, from photographs taken at the Royal Observatory, Greenwich, with the 30-inch reflector of the Thompson equatorial: **Astronomer Royal.** The photographs were shown on the screen, with diagrams to illustrate the orbits of the satellites.—Observations of the satellite of Neptune, from photographs taken at the Royal Observatory, Greenwich, with the 26-inch refractor: **Astronomer Royal.**—Expedition to Vinaroz, on the east coast of Spain, to observe the total solar eclipse of August last: Father **Cortie.**—Eclipse expedition to Burgos: Mr. **Thwaites.**—Eclipse expedition to Labrador: Mr. **Maunder.**—Photograph of the partial phase of the recent eclipse showing distinctly the entire disc of the moon: Mr. **Saunder.**—(1) Secular acceleration of the earth's orbital motion; (2) Ptolemaic eclipses of the moon as recorded in the Almagest: Mr. **Cowell.** In a paper already printed the author showed that the ancient solar eclipses are satisfied by adopting the following secular terms:—(1) in the distance of the moon from the node $+4''\cdot4$, and (2) in the distance of the moon from the sun $+6''\cdot8$. He now showed that these conclusions are supported by the eclipses of the moon as given in the Almagest. Mr. Cowell considered that a secular acceleration of the earth's orbital motion does not contravene gravitational theory, as Prof. Newcomb had suggested, since it might be ascribed to the resistance of the ether.—Other papers were taken as read.

Physical Society, November 10.—Dr. C. Chree, F.R.S., vice-president, in the chair.—The question of temperature and efficiency of thermal radiation: J. **Swinburne.** It has long been known that various surfaces have different emissivities, and it is generally held that at a given temperature some bodies radiate a larger percentage of their total radiation in the form of light. This view is largely based on some experiments by Evans and Bottomley, both of whom, the author remarks, make the same slip in confusing difference of emissivity with difference of efficiency at the same temperature. It is urged that a body A at the same temperature as B cannot give out radiation corresponding to a higher temperature of B, for if it could, and A and B were enclosed in a perfectly reflecting space, A would heat B to a higher temperature than A.—Note on constant-deviation prisms: T. H. **Blakesley.** It appears that any prism of three faces can be made to give a spectrum in which the light, that occupies the centre of the field of view of the telescope at any moment, has undergone passage through the two refracting surfaces of the prism in such a way that its original angle of incidence is equal to its final angle of emergence. This condition, which in the ordinary employment of the prism is associated with minimum deviation, must be described as isogonal passage, the property which has the minimum value being not the deviation, but the rate of passage across the field of view for a given motion of the prism, to which alone in these instruments motion has to be given to bring different parts of the spectrum into the field, the telescope and collimator both remaining fixed. If any triangle having the angles α, β, γ is adopted as the shape of a prism, the telescope must be set to make one of these angles, say γ, with the line of the collimator. Then the prism being placed in the region between them, a position can be found so that any ray selected will be refracted through one of the sides containing the angle γ, reflected at the side opposite γ, and finally refracted through the remaining side containing γ. On emergence it will be parallel to the telescope, and its passage through the refracting faces will be isogonal. The prism will affect the light to the same degree as one used in the ordinary way, of refracting angle $\beta-\alpha$, would do. The sine of the angle of original incidence is equal to $\mu \,.\, \sin(\beta-\alpha)/2$ for every ray occupying the centre of the field of view. If the prism is turned over, but the same angle γ employed, the telescope will remain unaltered, but the spectrum will run in an opposite direction to the first. Mr. Blakesley showed the case of two prisms in which the spectra ran in different directions. The top prism was slightly tilted by the insertion of a small piece of silver paper between the prisms. By this means one of the spectra was shifted upwards by a small amount, and one could see in the telescope a band, at top and bottom, of the component colours, and in the centre a band of the resulting colours. It was suggested that spectroscopes on this plan could be advantageously employed in measuring the motion in the line of sight of heavenly bodies, as a line brought into coincidence with itself for a terrestrial source in the two spectra would, in the case of such motion, split up into two moving *different* ways in the field of view. It was also explained how such prisms could be placed in trains for increased dispersion.

Royal Meteorological Society, November 15.—Mr. Richard Bentley, president, in the chair.—The rainstorm of August 24 to 26 in counties Dublin and Wicklow: Sir John W. **Moore.** The atmospheric disturbance which caused the torrential rainfall was near the shores of Kerry and Cornwall on August 24, and the next morning it was near the Scilly Islands. Thence it travelled slowly northwards up St. George's Channel, its centre passing near Dublin early on the morning of August 26. At this time the system suddenly changed its course, crossing the channel eastwards to Wales, and finally passing over central England and out to sea at the mouth of the Humber in a north-easterly direction. It appears that the rainfall on August 25 exceeded 3 inches at all stations in the counties Dublin and Wicklow, while it rose above 4 inches, and even 5 inches, at stations near the Dublin and Wicklow mountains. Sir John Moore is of opinion that this remarkable downpour was brought about by the cooperation of the following factors:—(1) a chill antecedent to the arrival of the rain-bearing depression; (2) the slow progress of the depression; (3) the fact that the counties Wicklow and Dublin lay to the westward of the cyclonic centre, and so received its north-easterly and northerly winds; and (4) the physical configuration of those counties and their coast line. As the result of this remarkable rainstorm a destructive flood occurred over the low-lying parts of the Bray urban district near the mouth of the Bray River. At Little Bray the water rose to a height of 4 feet in the streets, flooding houses, destroying domestic animals and fowls, wrecking furniture, and covering floors, yards, and gardens with a thick alluvial deposit.—The aquameter: Dr. W. B. **Newton.** This is a new instrument for measuring accurately the amount of aqueous vapour present in the atmosphere.

PARIS.

Academy of Sciences, November 13.—M. Troost in the chair.—Nitrates and nitrites as manure: Th. **Schloesing**, jun. Nitrate of calcium is now produced by electrical means from the air, and the salt thus obtained contains nitrite. It was desirable to ascertain whether the calcium nitrate is equivalent for manurial purposes to the sodium nitrate in ordinary use, and also whether the nitrite was in any way prejudicial. Cultivation experiments showed that the two nitrates were equivalent, and that the presence of nitrite was without objection.—On the floating spiked Decapods collected by the American expeditions of the *Hassler* and the *Blake*: E. L. **Bouvier.**—On the congruences of skew cubics: M. **Stuyvaert.**—On the development of a uniform analytical function in an infinite product: M. **Zoretti.**—On the complementary geodesic triangulations of the upper regions of the French Alps (third expedition): P. **Helbronner.**—On a dynamometric brake designed for measuring the power of motors, and which allows of the utilisation, in an electrical form, of the greater part of the work developed: A. **Krebs.** This electrical brake has been successfully applied to measuring the horse-power of motor-car engines of from 1 horse-power to 200 horse-power. It has several advantages over the friction dynamometer, as it can be used as long as may be required without any danger of over-heating, and is not liable to the errors introduced by the variations in the coefficient of friction.—On the electrical phenomenon created in liquid chains, symmetrical as regards concentration, by the formation of a fresh surface of contact: H. **Chanoz.**—On the liquefaction of air by compression with external work: Georges **Claude.** A continuation of an earlier paper on the same subject, and giving an account of the modifications which it has been necessary to make in the arrangements of the apparatus to secure an increased yield of liquid air.—On the molecular conductivity of the phosphoric esters: P. **Carré.** Measurements are given for the monoalkylphosphoric esters derived from ethyl and isobutyl alcohols, glycerol, erythritol, and mannide, and it was found that the ionisation of the acid phosphoric esters is considerably greater than with phosphoric acid itself.—A general method for the synthesis of $\alpha\beta$-glycidic esters and of ketones: Georges **Darzens.** In a previous paper the author has shown that by the condensation of monochloroacetic acid with ketones, trisubstituted glycidic esters are formed by the saponification of which unstable acids are produced, the latter readily splitting up into carbon dioxide and a ketone. This reaction has now been extended to α-chloropropionic acid, giving ketones of the type $RR_1.CH—CO—CH_3$. The reaction appears to be quite general; eight new glycidic esters and five new ketones are described.—On the constitution of crystallised bodies: Fréd. **Wallerant.**—Observations relating to the morphology of aërial bulbs: Marcel **Dubard.** *Coleus Dazo* shows a tendency to accumulate its reserves in its aërial organs when the conditions of growth are unfavourable to the formation of subterranean stems. These reserves, of a starchy nature, are deposited in the axillary buds originally intended to form flowers.—The changes in the amount of fragrant oil present in the plant during the accomplishment of the functions of the flower: Eug. **Charabot** and Alex. **Hébert.**—Comparison of the cycles of evolution of the Orthonectidæ and Dicyemidæ: F. **Mesnil** and M. **Caullery.**—The formation of the vitellus in the sparrow: M. **Dubuisson.**—The embryogeny of the Hexactinidæ: L. **Faurot.**—The reason why certain deaf mutes can hear low notes better than high ones: M. **Marage.** From experiments on animals unprovided with any organ of hearing, the author concludes that the perception of low musical notes by deaf mutes is not hearing in the proper sense of the word, but a special sense for low notes which is also met with in the lower animals.—The increase in the activity of the pancreatic secretion by calcium salts: C. **Delezenne.** The experiments described show the importance of calcium salts in developing the activity of pancreatic juice. A complete explanation of the effects produced is not, as yet, forthcoming.—On the tectonic at the S.W. of Chott and Hodna: J. **Savornin.**—On the use of hydrostatic pressure in tapping thermal springs: L. **De Launay.**—The exploration of the free atmosphere above the Atlantic Ocean, north of the tropical regions, on board the yacht of the Prince of Monaco, in 1905: H. **Hergesell.**

DIARY OF SOCIETIES.

THURSDAY, NOVEMBER 23.

ROYAL SOCIETY, at 4.30.—On the Nature of the Galvanotropic Irritability of Roots: Dr. A. J. Ewart and Miss Bayliss.—Some Observations on *Welwitschia mirabilis*, Hooker-f.: Prof. H. H. W. Pearson.—On the Effects of Alkalies and Acids, and of Alkaline and Acid Salts, upon Growth and Cell Division in the Fertilised Eggs of *Echinus esculentus*; a Study in Relationship to the Causation of Malignant Disease: Prof. B. Moore, Dr. H. E. Roaf, and E. Whitley.—A Note on the Effect of Acid, Alkali, and Certain Indicators in Arresting or Otherwise Influencing the Development of the Eggs of *Pleuronectes platessa* and *Echinus esculentus*: E. Whitley.—On Certain Physical and Chemical Properties of Solutions of Chloroform and other Anæsthetics. A Contribution to the Chemistry of Anæsthesia. (Second Communication): Prof. B. Moore and Dr. H. E. Roaf.—(1) On the Possibility of Determining the Presence or Absence of Tubercular Infection by the Examination of a Patient's Blood or Tissue Fluids: (2) On Spontaneous Phagocytosis and on the Phagocytosis which is obtained with the Heated Serum of Patients who have responded to Tubercular Infection, or as the Case may be to the Inoculation of a Tubercle Vaccine: Dr. A. E Wright and Staff-Surgeon S. T. Reid, R.N.—On the Occurrence of the Heterotypical Mitosis in Cancer: Dr. E. F. Bashford and J. A. Murray.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Applications of Electricity in the Royal Gun Factory, Woolwich Arsenal: Colonel H. C. L. Holden, R.A., F.R.S.

FRIDAY, NOVEMBER 24.

PHYSICAL SOCIETY, at 5.—The Dielectric Strength of Air: A. Russell.—On the Electrical Conductivity of Flames containing Salt Vapours for Rapidly Alternating Currents: Dr. H. A. Wilson.—On the Lateral Vibration of Loaded and Unloaded Bars: J. Morrow.

SATURDAY, NOVEMBER 25.

THE ESSEX FIELD CLUB (at Essex Museum of Natural History, Stratford), at 6.30.—Report of Club's Delegate at Meeting of Corresponding Societies' Committee, British Association, 1905: F. W. Rudler, I.S.O.—Romance of Plant Life: F. Martin-Duncan.

MONDAY, NOVEMBER 27.

SOCIETY OF ARTS, at 8.—The Measurement of High Frequency Currents and Electric Waves; Prof. J. A. Fleming, F.R.S.

INSTITUTE OF ACTUARIES, at 5.—Valuation by Select Tables: Separate Papers by Messrs. T. G. Ackland, O. F. Diver and G. King.

TUESDAY, NOVEMBER 28.

ZOOLOGICAL SOCIETY, at 8.30.

INSTITUTION OF CIVIL ENGINEERS, at 8.—*Discussion*: On Waterways in Great Britain: J. A. Saner.—*Also, time permitting*: The Steam-Turbine: The Hon. C. A. Parsons, C.B., F.R.S., and G. G. Stoney.

WEDNESDAY, NOVEMBER 29.

SOCIETY OF ARTS, at 8.—The British Association in South Africa: Sir William H. Preece, K.C.B., F.R.S.

FRIDAY, DECEMBER 1.

INSTITUTION OF CIVIL ENGINEERS, at 8.—An Installation for the Bacterial Treatment of Sewage, at Neath: W. L. Jenkins.

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